BUSINESS 1

lecture outline

Business 1 covers corporate governance and operations management. The two topics covered under operations management include performance management and impact of measures on behavior and cost measurement methods and techniques.

The CPA Exam Content Specification Outline assigns a range of 16 to 20 percent of the points to Corporate Governance and another 12 to 16 percent of the points to Operations Management on the Business section of the exam.

I. CORPORATE GOVERNANCE

A. Rights, Duties, Responsibilities, and Authority of Board of Directors and Officers

1. Duties of the board of directors include the election, removal, and supervision of officers; adoption, amendment, and repeal of bylaws; fixing management compensation; and initiating fundamental changes to the corporation's structure. Directors are fiduciaries of the corporation and must act in the best interests of the corporation. The board has the sole discretion to declare dividend distributions to shareholders.

2. Officers are individual (corporate) agents of the corporation who ordinarily conduct its day-to-day operations and may bind the corporation to contracts made on its behalf. Corporate officers, like corporate directors, are subject to fiduciary duties and must discharge their duties in good faith and with the same care as an ordinarily prudent person in a like position. Officers may also serve as directors of the corporation.

B. Sarbanes-Oxley Act of 2002

1. The Sarbanes-Oxley Act of 2002 greatly affected financial reporting for public companies. The act includes numerous provisions that assign responsibilities to management.

2. Title III of the act establishes requirements for the audit committee, including the composition of the committee and their duties. Title III also establishes the representations that are required by the CEO and CFO of a public company.

3. Title IV of the act describes enhanced financial disclosures associated with the financial statements, management's assessment of internal controls, officer code of ethics, and the operations of the audit committee.

4. Title VIII of the act outlines criminal penalties for altering documents, the status of limitations for securities fraud, whistle-blower protection rules, and criminal penalties for securities fraud.

5. Title IX pertains to individuals who conspire to commit any white collar offense. These individuals will be subject to penalties as predetermined (and amended) by the United States Sentencing Commission. Title IX also outlines the requirements for officers certifying financial reports filed with the SEC as well as the penalties that corporate officers may be subject to for not properly certifying these financial reports.

6. Title XI of the act outlines corporate fraud accountability, which includes any individual who tampers with records, impedes an official proceeding, or retaliates against informants. In cease-and-desist proceedings, the SEC may temporarily or permanently prohibit an individual from serving as an officer or director of a company.

C. The COSO Internal Control Framework

1. The Committee on Sponsoring Organizations (COSO) is an independent private-sector group that was established to study factors leading to fraudulent financial reporting.
2. The COSO issued the *Internal Control—Integrated Framework* (*Framework*) as a basis for companies to assess internal controls.
3. The framework has established three categories of objectives that pertain to operations, reporting, and compliance objectives.
4. Within the framework are five integrated components of internal control: **c**ontrol environment, **r**isk assessment, **i**nformation and communication, **m**onitoring, and **e**xisting control activities (**CRIME**). There are also seventeen principles or fundamental concepts included within these five components of internal control.
5. The COSO Cube is a three-dimensional figure that shows the direct relationship between the three categories of objectives, the five integrated internal control components, and the organizational structure of the entity.
6. The framework stipulates that for an internal control system to be considered effective, all five integrated components and relevant seventeen principles must be both present and functioning.
7. Although an effective internal control framework provides reasonable assurance that an entity will achieve its stated objectives, it does not prevent bad decisions made by management or eliminate external events that may prevent the achievement of the entity's operational goals.

D. Enterprise Risk Management

1. The COSO issued the *Enterprise Risk Management-Integrated Framework* (ERM), a publication that builds upon the framework to provide a more extensive evaluation of the broader concept of enterprise risk management.
2. The ERM Framework includes the following themes: aligning risk appetite and strategy; enhancing risk response decisions; reducing operating surprises and losses; identifying and managing multiple and cross-enterprise risks; seizing opportunities; and, improving the deployment of capital.
3. ERM breaks down enterprise objectives into four main categories including strategic objectives, operational objectives, reporting objectives, and compliance objectives.
4. ERM includes eight components supported by key elements that define the requirements of each component. The components of ERM include: the organization's **i**nternal environment; **s**etting objectives; **e**vent identification; **a**ssessment of risk; **r**isk response; **a**ctivities (control); **i**nformation and communication; and **m**onitoring. Alternatively, the components of ERM are **IS EAR AIM**.
5. The change control process considers the manner in which management monitors and authorizes changes to a variety of information technology matters.

II. OPERATIONS MANAGEMENT: PERFORMANCE MANAGEMENT AND IMPACT OF MEASURES ON BEHAVIOR

A. Financial and Nonfinancial Measures

1. Financial performance measures include profit, return on investment, variance analysis, and balanced scorecard.

2. Nonfinancial measures include external benchmarks, such as total factor productivity ratios (TFPs) and partial productivity ratios (PPRs), and internal benchmarks, such as control charts, Pareto diagrams, and cause-and-effect (fishbone) diagrams.

B. Impact of Marketing Practices on Performance

1. Marketing practices generally focus on one of five elements, including the product, the market segment, the delivery system, the communication strategy, and the price.

2. Marketing decisions must consider the objectives of management and the manner in which alternative practices achieve those objectives.

3. Marketing methods are selected to efficiently promote/sell the products and drive the methods used to direct customer and employee behavior.

C. Incentive Compensation

1. Incentive compensation is intended to promote goal congruence, which is the alignment of management's goals and objectives with that of the employer.

2. Compensation may take the form of fixed salaries, bonuses, or perquisites (perks).

3. Compensation involves the choice of time horizon, fixed versus variable bonuses, stock versus accounting-based performance measures, local versus company-wide performance measures, and cooperative versus competitive incentive plans.

III. OPERATIONS MANAGEMENT: COST MEASUREMENT METHODS AND TECHNIQUES

A. A single cost object can have more than one measurement. Inventory (product) costs for financial reporting purposes are usually different from inventory costs reported for tax purposes.

B. Product costs are all costs associated with manufacturing a product. Product costs are "inventoriable" while period costs (SG&A) are expensed in the period incurred.

C. Direct costs (e.g., direct raw material, direct labor) are traceable while indirect costs, mostly manufacturing overhead items, are not. Indirect costs can be allocated to production using traditional costing or activity-based costing.

D. Costs may be variable, fixed, or semi-variable (fixed and variable mixed) and may be expressed as a total or on a per-unit basis.

E. The "cost of goods manufactured statement" accumulates all costs of production, adjusts for changes in work in process, to determine (present) cost of goods manufactured for a period. The "cost of goods sold statement" is similar except its purpose is to determine cost of goods sold for a given period, and for a retailer, purchases may be substituted for cost of goods manufactured in the statement.

F. Job-order costing accumulates costs for individual jobs or batches.

G. Process costing accumulates costs for large numbers of homogeneous items, averages them, and assigns a per-unit cost based on equivalent units.

H. An equivalent unit of direct material, direct labor, or conversion costs (direct labor plus factory overhead) is equal to the amount of direct material, direct labor, or conversion costs necessary to complete one unit of production.

I. Cost per equivalent unit can be calculated using FIFO or the weighted-average inventory costing methods.

J. Under FIFO accounting, the ending inventory is priced at the cost of manufacturing during the period, assuming that the beginning inventory was completed during the period. FIFO *equivalent units* are composed of three separate elements: (1) completion of units on hand at the beginning of the period; (2) units started and completed during the period; and (3) units partially complete at the end of the period. Total cost includes only costs incurred during the current period.

K. The weighted average cost method averages the cost of production during the period with the costs in the beginning work-in-process inventory. Weighted average *equivalent units* are composed of two elements: (1) units completed during the period (regardless of when the work was done); and (2) units partially complete at the end of the period. Total costs include both the costs of beginning inventory and current costs.

L. Normal spoilage occurs under regular operating conditions and is included as a standard inventory cost of the manufactured product. Abnormal spoilage does not occur under normal operating conditions and is included as a period expense.

M. Activity-based costing (ABC) refines traditional costing methods and assumes that the resource-consuming activities (tasks, units of work, etc.) with specific purposes cause costs. ABC assumes that the best way to assign indirect costs to products (cost objects) is based on the product's demand for resource-consuming activities (i.e., costs are assigned based on the consumption of resources). Application of activity-based costing techniques attempts to improve cost allocation by emphasizing long-term product analysis.

N. The direct method or the step-down method can be used to allocate service (department) costs under activity-based costing.

O. Joint and by-product costing attempts to allocate the joint costs of two or more separate products using unit volume relationships or net realizable value. Under this allocation method, common or joint costs relate to multiple products that cannot be separately identified.

BUSINESS 2
lecture outline

Business 2 covers profitability and pricing analysis, marginal analysis, forecasting and projections, budgeting, variance analysis, and responsibility accounting. The Content Specification Outline assigns an estimated range of 10 to 14 percent to this area of the Business exam.

I. PROFITABILITY AND PRICING ANALYSIS

A. Cost-volume-profit (CVP) analysis is used to determine the breakeven point when fixed costs are "covered" by contribution margin (sales less variable costs). Under CVP, managers can forecast profits using different levels of sales and production volume. Breakeven can be expressed in units or dollar sales.

B. CVP analysis uses the contribution approach (direct/variable costing) to the income statement. The candidate should know that the *contribution margin ratio equals the contribution margin divided by revenue.*

C. The contribution approach and the absorption approach differ in the treatment of fixed overhead costs. Under the contribution approach, fixed factory overhead is treated as a period cost and is expensed in the period incurred. Under the absorption approach, fixed factory overhead is a product cost and is included in inventory values.

D. If there is *no change in inventory during the period*, absorption net income equals variable costing net income. If there is *an increase in inventory*, absorption net income is greater than variable costing net income. If there is *a decrease in inventory*, absorption net income is less than variable costing net income. *Know these relationships for the exam.*

E. *Know the various breakeven formulas*, including the breakeven point in units, contribution margin ratio (per unit), and the required sales volume (dollars) to derive a target profit.

F. The margin of safety is the excess of sales over breakeven sales and is generally expressed in either dollars or as a percentage.

G. Target costing is a technique used to determine the product cost allowed to ensure both profitability per unit and total sales volume.

H. Transfer pricing (global perspective) is a methodology for allocating profits or losses among related entities within the same corporate legal group in different tax jurisdictions. From a non-global perspective, a transfer price is the price charged for the sale or purchase of a product internally such as between two divisions within a domestic company.

II. MARGINAL ANALYSIS

A. Marginal analysis is used when analyzing business decisions such as accepting or rejecting special orders, making or buying a product or service, selling or processing further, and adding or dropping a segment. Marginal analysis focuses on the relevant revenues and costs that are associated with a decision.

B. Costs and revenues are relevant if they change as a result of selecting different alternatives. Relevant costs include incremental costs (the additional costs incurred to produce an additional unit of output) and opportunity costs (the costs of foregoing the next best alternative when making a decision).

C. Costs which are not different among alternatives are irrelevant and should be ignored in marginal cost analysis. Sunk costs are not relevant costs.

D. Special orders require a firm to decide if a specially priced order should be accepted or rejected. When there is excess capacity, a special order should be accepted if the selling price per unit is greater than the variable cost per unit. If the company is operating at full capacity, the opportunity cost of producing the special order should be included in the analysis.

E. The decision to *make or buy* a component (also referred to as insourcing versus outsourcing) is similar to the special order decision. Managers should consider only relevant costs and select the lowest-cost alternative.

F. A *sell or process-further* decision is made by comparing the incremental cost and the incremental revenue generated after the split-off point. If the incremental revenue exceeds the incremental cost, the organization should process further. If the incremental cost exceeds the incremental revenue, the organization should sell at the split-off point.

G. When deciding whether to *keep or drop a segment*, a firm should compare the fixed costs that can be avoided if the segment is dropped (i.e., the cost of running the segment) to the contribution margin that will be lost if the segment is dropped. The segment should be kept if the lost contribution margin exceeds avoided fixed costs and dropped if the lost contribution margin is less than avoided fixed costs.

III. FORECASTING AND PROJECTION

A. Sensitivity analysis is the process of experimenting with different parameters and assumptions regarding a model and cataloging the range of results to view the possible consequences of a decision. When preparing financial models, managers may apply different scenarios (analysis) to determine various potential outcomes.

B. Forecasting is an extension of sensitivity analysis that involves an examination of historical relationships to formulate predictions regarding independent variables in order to predict future values of dependent variables.

C. Linear regression is a method for studying the relationship between two or more variables. Linear regression is used to predict the value of a dependent variable [e.g., total cost (y)] corresponding to given values of the independent variables [e.g., fixed costs (A), variable cost per unit (B), and production expressed in units (x)].

D. A simple regression involves only one independent variable, whereas multiple regressions involve more than one independent variable. Know that the coefficient of correlation (r) measures the strength of the linear relationship between the independent variable and the dependent variable. The range of r is from –1.0 (perfect inverse relationship) to 1.0 (perfect direct relationship).

E. Learning curve analysis is based on the premise that as workers become more familiar with a specific task, the per-unit labor hours will decline as experience is gained and production becomes more efficient.

F. The high-low method is a simple technique that is used to estimate the fixed and variable portions of cost, usually production costs.

IV. BUDGETING

A. Tactical plans are a short-term planning tool covering up to 18 months. An annual budget represents a type of single-use tactical plan.

B. Budgets frequently revolve around the development of standards. Standards have been referred to as per-unit budgets and are integral to the development of flexible budgets.

C. Ideal standards represent the costs that result from perfect efficiency and effectiveness in job performance. Currently attainable standards represent costs that result from work performed by employees with appropriate training and experience but without extraordinary effort.

D. A master budget (or "annual business plan") documents specific short-term operating performance goals for a period of time, normally one year or less. The plan normally includes an operating (nonfinancial) budget as well as a financial budget that outlines the sources of funds and detailed plans for their expenditure.

E. A master budget begins with a projected sales budget and flows through to a production budget, cost of goods sold budget, selling and administrative expense budget, capital budget, and financial budgets (cash budget and pro forma financial statements).

F. Capital (purchases) budgets provide detail on planned capital expenditure items for an organization based on a defined period.

G. A flexible budget is a financial plan that allows for adjustments for changes in production or sales and accurately reflects expected costs for the adjusted output. Analysis focuses on substantive variances from standards rather than simple changes in volume or activity. Flexible budgets are adjustable economic models that are designed to predict outcomes and accommodate changes in actual activity.

V. VARIANCE ANALYSIS

A. Performing a budget variance analysis involves comparing actual results to the annual business plan to determine favorable and unfavorable variances.

B. Variance analysis can also be performed using standards. Standard costing systems are the most common cost measurement systems. Standard costs, in the aggregate, measure the costs the firm expects it should incur during production. In a standard costing system, standard costs are used for *all* manufacturing costs (i.e., raw materials, direct labor, and manufacturing overhead).

C. For direct materials and direct labor, two variances are typically calculated: a price (or rate) variance and a quantity (or efficiency) variance. The variance calculations may be approached in either an equation or a tabular format.

D. The analysis of manufacturing overhead is the analysis of the debit or credit balance in the overhead account. A net debit balance (under applied) is an unfavorable variance while a net credit balance (over applied) is a favorable variance.

E. The overall manufacturing overhead variance can be broken down into variable and fixed overhead variances. The variable overhead variance can be further broken into a rate (spending) variance and an efficiency (usage) variance. The fixed overhead variance can be divided into a budget (spending) variance and a volume variance.

F. Various types of sales and contribution margin variance analyses can be used to evaluate the effectiveness of an entity's identification of target markets and its strategies to capture those markets. The sales variance (the difference between actual sales revenue and budgeted sales revenue) comprises various components.

VI. RESPONSIBILITY ACCOUNTING

A. Financial scorecards can be prepared for strategic business units (SBU). Strategic business units can be classified as cost, revenue, profit or investment. An SBU can also be classified by product line, geographic area, or customer. Managers are responsible for variable costs and controllable fixed costs. Common costs are not considered controllable.

B. The balanced scorecard gathers information on multiple dimensions of an organization's performance defined by critical success factors necessary to accomplish firm strategy. Critical success factors are classified as financial, internal business processes, customer satisfaction, and advancement of innovation and human resource development (learning and growth). The scorecard usually describes the classifications of critical success factors, the strategic goals, the tactics, and the related measures associated with both strategic and tactical goals.

BUSINESS 3

lecture outline

Business 3 covers capital budgeting, leverage, weighted average cost of capital and optimal capital structure, asset effectiveness and efficiency, working capital management, and ratios.

The material contained in this section pertains to the financial management category which, along with material covered in other sections, constitutes an estimated 19 to 23 percent of the Business exam.

I. CAPITAL BUDGETING

A. After-tax cash flows over the life of the project, both direct and indirect, are analyzed in the capital budgeting process. When a company pays out cash, receives cash, or makes a cash commitment that is directly related to the capital investment, that effect is termed the direct effect. Indirect cash flow effects include transactions that are indirectly associated with a capital project or represent a noncash activity that produces cash benefits or obligations.

B. Stages of cash flows in a capital investment project include the inception of the project (at time period zero), the ongoing periodic cash flows generated by the project, and the terminal value associated with the disposal or winding down of a project.

C. The candidate should know the steps in calculating a capital budgeting project's annual after-tax cash flows, including: estimating net cash inflows; subtracting noncash tax deductible expenses to arrive at pretax income; computing income tax expense based on the tax rate; subtracting tax expense from net cash inflows to derive after-tax cash flows.

D. DCF valuation methods determine the present value of all expected future cash flows using a predetermined discount rate (e.g., WACC, required rate of return).

E. The net present value (NPV) method compares the PV of future cash flows to the initial investment. If NPV is positive, the investment should be made. If NPV is negative, the investment should not be made.

F. NPV method is flexible and can be used when there is no constant rate of return required for each year of the project.

G. Even though NPV is considered the *best* single technique for capital budgeting, the net present value method is limited by not providing the true rate of return on the investment.

H. Capital rationing attempts to spend limited (rationed) funds in the most efficient manner in order to select the combination of projects that will maximize net present value.

I. The profitability index (PI) divides the PV of the net future cash flows by the initial investment. The profitability index is computed for each project alternative with each project ranked in order of the highest score. Projects with a PI < 1.0 are undesirable.

J. The internal rate of return (IRR) method determines the present value factor (and related interest rate) that yields an NPV equal to zero. Only projects with an IRR greater than the hurdle rate should be accepted.

K. The IRR method has several limitations including an unreasonable reinvestment assumption (cash flows reinvested at the IRR), inflexible cash flow assumptions (alternating positive and negative cash flows create IRR errors), and it is a relative measure that is compared to a hurdle rate (versus NPV which provides the absolute dollar contribution of the project).

L. The payback period method calculates the time it will take to recover the initial investment, disregarding time value of money. The advantages of the payback period method are that it is easy to use and understand and that it emphasizes liquidity. However, the payback period method ignores the time value of money and total project profitability (cash flows after the payback period).

M. The discounted payback period method use PV factors to discount the expected cash flows. This method also ignores the total profitability of the entire project.

II. LEVERAGE

A. Operating leverage measures the effect on a firm's profitability caused by a change in sales. Firms that rely more heavily on fixed costs as opposed to variable costs will have higher leverage. High leverage means greater return on the upside with higher risk on the downside.

B. Financial leverage is the degree to which a firm uses debt to finance operations. Again, high financial leverage means high risk/return.

III. WEIGHTED AVERAGE COST OF CAPITAL AND OPTIMAL CAPITAL STRUCTURE

A. A firm's weighted-average cost of capital (WACC) is calculated using the weighted proportion of the entity's after-tax cost of debt, preferred stock, and common equity. Equity cost may be the cost of internal retained earnings or issuing new common stock. WACC is often used as a "hurdle" rate in capital investment decisions.

B. The optimal capital structure is the one that produces the lowest WACC for the firm.

C. The cost of retained earnings can be calculated using the capital asset pricing model (CAPM), discounted cash flow (DCF) or bond yield plus risk premium (BYRP) method.

IV. ASSET EFFECTIVENESS AND EFFICIENCY

A. Return on investment (ROI) measures a company's percentage return relative to its capital investment risk. ROI can be expressed as income divided by invested capital; or, ROI can be expressed as a product of profit margin and investment turnover. Asset valuations can impact ROI and return on assets (ROA) results.

B. Return on equity (ROE) can be further analyzed using the DuPont model. The three-step DuPont model breaks down ROE into three ratios, including the net profit margin, asset turnover, and financial leverage. The extended DuPont model adds a tax burden and interest burden to the ROE calculation.

C. The residual income method measures the excess of actual income earned by an investment over the required (target or hurdle) return rate required by the company. While ROI provides a percentage measurement, residual income provides an amount.

D. The additional ratios used to measure the effectiveness of a firm’s long-term financing (solvency) include the debt-to-total capital ratio, debt-to-asset ratio, debt-to-equity ratio, and the times interest earned ratio.

V. WORKING CAPITAL MANAGEMENT

A. Working Capital Management involves managing current assets (especially cash) and current liabilities so that a company can meet its current obligations in an efficient manner. The current and quick (acid test) ratios are used in working capital analysis.

B. The goal of working capital management is to maximize shareholder wealth.

C. Motives for holding cash are transaction, speculation, and precautionary related.

D. The cash conversion cycle (CCC) measures the time from cash outlay to cash collection in days. The CCC period can be shortened by increasing inventory turnover, collecting receivables more quickly or deferring remittances on payables for a longer period. (The candidate should be able to calculate the CCC using the formula which includes inventory turnover, AR turnover, and AP turnover, converted to a 365-days basis.)

E. Effective cash management synchronizes inflows and outflows. Float, overdraft protection, and compensating balances are additional tools for cash management.

F. Accounts receivable management involves effectively balancing credit and collection policies to optimize the average collection period and number of days' sales in receivables. A company can also factor (sell) its receivables to get cash more quickly; however, this is generally costly and should only be used if no other alternatives are available.

G. Trade credit is the primary source of short-term credit for small firms.

H. Inventory management attempts to balance the costs of carrying inventory against the costs of "stocking out." Inventory turnover and the number of days' sales in inventory are two key ratios used in analysis. Safety stock, reorder point, and economic order quantity (EOQ) are tools used to control inventory quantities. Technology has made significant improvements in inventory control possible. Materials requirement planning (MRP), just-in-time, and Kanban are some of these contemporary techniques.

I. Marketable securities provide much lower returns than operating assets but higher returns than cash. Common marketable securities include U.S. Treasury bills, negotiable certificates of deposit, banker's acceptances, commercial paper, and eurodollar investments.

VI. FORMULAE AND RATIOS

A. The candidate should be able to calculate and interpret the formulas and financial ratios in the appendix to the B3 lecture.

BUSINESS 4

lecture outline

Business 4 covers organizational needs assessment, systems design and other elements, security, internet implications for business, types of information systems and technology risks, and disaster recovery and business continuity.

The Content Specification Outline assigns a range of 15 to 19 percent to this area on the Business exam.

I. ORGANIZATIONAL NEEDS ASSESSMENT

A. Information technology includes the hardware, software, data, people, and networks in a company's computer system.

B. Data capture, the first step in processing business transactions, captures the data for each transaction that takes place and enters the data into the system.

C. Once data about a business activity has been collected and entered into the system, the data must be processed. After the data has been processed, the information output can be shared across a network with other end users.

D. An accounting information system (AIS) is a type of management information system. The AIS processes accounting transactions from source documents through the financial statements, creating an audit trail for tracing and vouching the transactions.

E. The data processing cycle can be broken down into four functional areas, including data input, data storage, data processing, and information output.

F. The two methods of performing file maintenance on master files (databases) are batch processing and online, real-time (OLRT) processing.

G. A centralized processing environment involves maintaining all data and performing all data processing at a centralized location. Decentralized processing distributes computing power, applications, and processing work over many locations.

H. Types of reports include periodic scheduled reports, exception reports, demand reports, ad hoc reports, and push reports. A well-designed system should have the ability to generate a report to answer virtually any questions an end user may have.

I. A business strategy is the process used to sustain and grow a value-adding organization. An organization's needs assessment seeks to align the use of information technology with the achievement of business strategy.

II. SYSTEMS DESIGN AND OTHER ELEMENTS

A. Be able to distinguish between the categories of business information systems, including transaction processing systems, management information systems (MIS), decision support systems (DSS), and executive information systems (EIS).

B. The systems development life cycle (SDLC) is a multi-step process used by organizations for planning and controlling the detailed activities associated with systems development. The steps are: system **a**nalysis, **d**esign (conceptual and physical), **i**mplementation and conversion, **t**raining, **t**esting, and **o**perations and maintenance. Know the mnemonic **A DITTO**.

C. The *Control Objectives for Information and Related Technology* (COBIT) framework provides managers, auditors, and information technology (IT) users with a set of measures, indicators, processes, and best practices to maximize the benefit of information technology. In addition, the COBIT framework is intended to assist in the development of appropriate IT governance and control within an organization.

D. Know the seven information criteria under COBIT: **i**ntegrity, **c**onfidentiality, **e**fficiency, **r**eliability, **a**vailability, **c**ompliance, and **e**ffectiveness. [**ICE RACE**]

E. COBIT defines IT processes within the context of four domains: plan and organize (direct); acquire and implement (solutions); deliver and support (service); and monitor and evaluate (ensure direction followed).

F. General controls ensure that an entity's control environment is stable and well-managed, whereas application controls prevent, detect, and correct transaction error and fraud that are application-specific.

G. Evaluating the ongoing effectiveness of control policies and procedures provides added assurance that controls are operating as prescribed and achieving their intended purpose.

H. Proper segregation of duties is very important in the organization of IT. The system should separate responsibilities for authorizing transactions, recording those transactions, and maintaining custody of assets. In general, systems analysts, computer programmers, computer operators, and security administrators should be kept separate (although many companies combine systems analysts and computer programmers).

I. An IT policy explains proper business practices, describes the knowledge and experience needed by key personnel, spells out management policy for handling specific transactions, and documents the systems and procedures employed to process those transactions.

III. SECURITY

A. Technologies and Security Management Features

1. Data and procedural controls are implemented to ensure that data is recorded, errors are corrected during processing, and output is properly distributed.
2. Backup files are necessary both for disaster recovery and for recovery from processing problems.
3. Program modification controls include controls that attempt to prevent changes by unauthorized personnel and also include controls that track program changes so that there is an exact record of what versions of what programs are running in production at any specific point in time.
4. Data encryption is an essential foundation for electronic commerce. Encryption involves using a password or a digital key to scramble a readable (plaintext) message into an unreadable (ciphertext) message.
5. Passwords are designed to protect access to secure sites and information. Password policies should require that every account must have a password and that passwords are to be kept secret.
6. User access is the first target of a hacker who has gained access to an organization's network. Diligent care must be used when designing procedures for creating accounts and granting access to information.

B. Policies

1. An entity's information security policy is a document that states how an organization plans to protect its tangible and intangible information assets.

2. There are four types of computer security policies:

    a. A program-level policy is used for creating a management-sponsored computer security program.

    b. A program-framework policy establishes the overall approach to computer security (i.e., a computer security framework).

    c. Issue-specific policies address specific issues of concern to the organization.

    d. System-specific policies focus on policy issues that exist for a specific system.

3. A three-level model can be used to develop a comprehensive set of system policies:

    a. Security objectives are a series of statements to describe meaningful actions about specific resources.

    b. Operational security should define authorized and unauthorized modification.

    c. Policy implementation is the role technology plays in enforcing or supporting the policy.

IV. INTERNET: IMPLICATIONS FOR BUSINESS

A. Electronic Commerce

1. *Electronic business* (e-business) refers to the use of information technologies in any aspect of the business or organization. Electronic commerce (e-commerce) is the electronic consummation of exchange (buying and selling) transactions.

2. *Electronic data interchange* (EDI) is the computer-to-computer exchange of business transaction documents between trading partners in structured formats that allow the direct processing of the data by the receiving system. It is generally more secure than e-commerce because a value-added network (VAN) is normally used.

B. Opportunities for Business Process Reengineering

1. *Business process reengineering* (BPR) is the analysis and redesign of business processes and information systems to achieve significant performance improvements by taking advantage of technological advances.

2. *B2B e-commerce* sites make purchasing decisions faster, simpler, safer, more reliable, and more cost effective because companies can use websites to do research and transact business with many vendors.

    a. *Business-to-Consumer* (B2C) is the process of a business selling its products or services to the public.

    b. *Business-to-Business* (B2B) is the process of a business selling its products or services to other businesses.

    c. *Consumer-to-Consumer* (C2C) is the process of a consumer selling products to other consumers (such as on eBay).

3. B2B (Business-to-Business) and B2C (Business-to-Consumer) allow purchasers to research alternatives through a website and make their purchases electronically.
4. An enterprise resource planning system (ERP) is a cross-functional system that integrates and automates the many business processes that work together in the manufacturing, logistics, distribution, accounting, finance, and human resource functions of business.
5. A supply chain management (SCM) system is the integration of business processes from the customer to original supplier.
6. Customer relationship management (CRM) systems provide sales force automation and customer services in an attempt to manage customer relationships.
7. Electronic funds transfer (EFT) is a form of electronic payment that reduces the time to process checks and credit transactions.
8. Application service providers (ASP) provide access to application programs on a rental basis.

C. Effects of Internet Evolution on Business Operations and Organization Cultures

1. Web 2.0 emerging technologies have had a considerable impact on e-commerce.
2. Technology advances led to the development of "Web 2.0," in which Web surfers began to interact with websites.
3. Cloud computing represents virtual servers available on a real-time basis over the Internet.

V. TYPES OF INFORMATION SYSTEMS AND TECHNOLOGY RISKS

A. *Risk* represents the possibility of a loss or harm to an entity:

1. *Strategic risk* includes the risk of choosing inappropriate technology.
2. *Operating risk* includes the risk of doing the right things in the wrong way.
3. *Financial risk* includes the risk of having financial resources lost, wasted, or stolen.
4. *Information risk* includes the risk of loss of data integrity, incomplete transactions, or hackers.
5. *Specific risks* can be divided into the categories of errors, intentional acts, and disasters.

B. The threats in a computerized environment include viruses, worms, Trojan horses, denial-of-service attacks, and phishing.

C. The steps in *risk assessment* are to identify the threats; to evaluate the threats in terms of the probability of occurrence; to evaluate the exposure, in terms of potential loss, from each threat; to identify the controls that could guard against the threats; to evaluate the costs and benefits of implementing the controls; and to implement the controls that are cost effective.

D. Access controls limit access to program documentation, data files, programs, and computer hardware to those who require it in the performance of their job responsibilities.

VI. DISASTER RECOVERY AND BUSINESS CONTINUITY

A. Disaster recovery plans are necessary to help ensure business continuity in case of a loss of processing capability.

B. A cold site is an off-site location that has all the electrical connections and other physical requirements for data processing, but it does not have the actual equipment.

C. A hot site is an off-site location that is equipped to take over the company's data processing.

D. A warm site is a facility that is already stocked with all the hardware that it takes to create a reasonable facsimile of the primary data center.

VII. APPENDIX: IT FUNDAMENTALS

A. Examples of computer hardware include a central processing unit (CPU), secondary storage devices, and peripherals (such as printers).

B. System software consists of the programs that run the computer and support system management operations. The operating system provides the interface between the user and the hardware, while controlling all input and output to the main memory.

C. A database management system (DBMS) is technically not a database, but instead a separate computer program that allows an organization to create new databases and then use and work with the contained data. The four main functions of DBMS are database development, database query, database maintenance, and application development.

D. A network is a group of interconnected computers, terminals, communication channels, communication processors, and communication software. Local area networks (LANs) allow shared resources (software, hardware, and data) among computers within a limited area. Wide area networks (WANs) allow national and international communications.

BUSINESS 5

lecture outline

Business 5 covers economic concepts including changes in economic and business cycles, economic measures and indicators, and market influence on business strategies. Candidates are not expected to be Nobel-Prize-winning economists; however, a good working knowledge of both macroeconomics and microeconomics is required.

The Content Specification Outline assigns a range of 16 to 20 percent to this area on the Business exam.

I. CHANGES IN ECONOMIC AND BUSINESS CYCLES

A. Gross Domestic Product (GDP) represents the total market value of all final goods and services produced within the borders of a nation in a given period. Real GDP is nominal GDP adjusted for changing prices.

B. Fluctuations in economic activity are known as business cycles and include an expansionary phase, peak, contractionary phase, trough, and recovery phase.

C. Economic Indicators help to predict business cycles. Know that *leading* indicators predict economic activity (e.g., orders for goods), *lagging* indicators follow economic activity (e.g., prime rate charged by banks), and *coincident* indicators occur at the same time as economic activity (e.g., industrial production).

D. Aggregate demand and aggregate supply curves can be used to illustrate the relationship between a country’s output (real GDP) and price level (the GDP deflator).

E. Know the factors (see below) that shift the aggregate demand curve and shift the short-run aggregate supply curve. For each factor, know the direction of the shift and the corresponding impact on the price level and output.

F. Be familiar with the multiplier effect. Know how a given marginal propensity to consume (MPC) and specific dollar increase in consumer, firm, or government spending will impact real GDP.

II. ECONOMIC MEASURES AND INDICATORS

A. GDP can be measured using the expenditure approach (**GICE**) or the income approach (**IPIRATED**). Be able to calculate GDP under each of these approaches.

B. Variations on GDP are computed by removing, or changing, components of its measurement. These are (by acronym) NDP, GNP, NNP, NI, PI, and DI.

C. The unemployment rate measures the ratio of the number of unemployed to the total labor force. As this rate rises, GDP tends to contract - and vice versa. Know the types (causes) of unemployment, including frictional, structural, seasonal, and cyclical unemployment.

D. The Consumer Price Index (CPI) assists in measuring the change in prices, inflation, or deflation over a period. Because inflation decreases the purchasing power of money, it is one of the key elements of the economy to control. Know the inflation rate formula using the year-to-year change in CPI.

E. Causes of inflation are demand-pull and cost-push inflation. Demand-pull inflation is caused by increases in aggregate demand (factors), whereas cost-push inflation is caused by reductions in short-run aggregate supply (factors).

F. Deflation is caused by shifts in aggregate demand or short-run aggregate supply. Many economists believe that deflation is more harmful than inflation.

G. Inflation and unemployment have an inverse relationship, as shown in the Phillips curve.

H. Budget deficits occur when a country spends more than it takes in (taxes) during the year. The three types of budget deficits include financing, cyclical, and structural.

I. Know the definitions of money (e.g., M1, M2, and M3) and how the Federal Reserve controls the U.S. monetary supply through open market operations, changing the discount rate for short-term loans to member banks, or changing the required reserve ratio on bank deposit reserves.

J. Government spending and taxes are the main tools of fiscal policy. Budget surpluses and deficits are important indicators of the "health" of the economy.

K. In general, if the economy is in a decline, pumping money into the economy or making money "cheaper" will help to make the economy expand. Taking money out of the economy, or making it more expensive, will tend to slow down an economy that may be rising too rapidly.

III. MARKET INFLUENCE ON BUSINESS STRATEGIES

A. The fundamental law of demand holds that the price of a product and the quantity demanded of that product are inversely related. Factors that will shift demand, other than price, are changes in: **w**ealth; prices of **r**elated goods; consumer **i**ncome; consumer **t**astes or preferences for a product; consumer expectations; and **n**umber of buyers served by the market (**WRITEN**).

B. The fundamental law of supply holds that the price of a product and the quantity supplied of that product are positively related. Factors, other than price, that will shift supply are changes in: price **e**xpectations of the supplying firm; production **c**osts; price or demand for **o**ther goods; **s**ubsidies or taxes; and production **t**echnology (**ECOST**).

C. The interaction of supply and demand in an open market will determine the equilibrium price of a product. If either the supply or demand curves shift, the equilibrium price and quantity will increase or decrease.

D. To control an economy, a government may employ tools such as price ceilings and price floors.

E. Demand for a product is said to be elastic if an increase in the price of the product will reduce total revenue, while a price decrease will increase total revenue. If the price of such a product increases, consumers will shift to substitute products. *Price elastic means the absolute price elasticity of demand is greater than 1.0.*

F. Demand for a product is said to be inelastic if an increase in the price of the product will increase total revenue, and vice versa. If there are no available substitute products, consumers will have to pay the higher price for the product. *Price inelastic means the absolute price elasticity of demand is less than 1.0* (the candidate should note that demand is unit elastic when the absolute price elasticity of demand = 1.0).

G. Cross elasticity of demand (or supply) measures the percentage change in the quantity demanded (or supplied) of one good caused by the price change of another. Positive cross elasticity = Substitute. Negative cross elasticity = Complementary.

H. Income elasticity of demand measures the percentage change in quantity demanded for a product caused by a change in income. Positive income elasticity = Normal. Negative income elasticity = Inferior.

I. The candidate should be able to calculate the price elasticity of demand, the price elasticity of supply, cross elasticity of demand or supply, and the income elasticity of demand.

J. Know the four major cost functions (AFC, AVC, ATC, MC), especially how to calculate marginal cost.

K. The four types of market structure are perfect (pure) competition, monopolistic competition, oligopolies, and monopolies. The *Market Structure Table* summarizes the characteristics of these market structures. *Know the characteristics of each market structure for the exam.*

L. SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis is used to assist in developing the appropriate strategic plan for a firm.

M. Be familiar with Michael Porter's five forces (Porter model) that affect the competitive environment and ultimately the profitability of a firm. The five forces include barriers to entry, market competitiveness, existence of substitute products, bargaining power of customers, and bargaining power of suppliers.

N. The primary competitive strategies are cost leadership, product differentiation, best cost, and focus/niche strategy. Know when each competitive strategy works and doesn't work well.

O. Economies are systems of markets that are driven by factors of production: land, labor, and capital.

P. In value chain analysis, a firm will analyze its flow of activities to assess how it creates value in the marketplace.

Q. Integrated supply chain management (ISCM) exists when a firm and the entire supply chain are able to reasonably predict the expected demand of consumers for a product and then make effective plans to meet that demand.

R. The SCOR model is a generic model used for supply chain analysis. There are four core activities pertaining to SCOR including, plan, source, make, and deliver.

BUSINESS 6

lecture outline

Business 6 covers process and project (operations) management, globalization and local economies, financial risk management, financial decisions, financial valuation, and internal audit standards.

I. OPERATIONS MANAGEMENT: PROCESS MANAGEMENT

A. Approaches, Activities, Techniques, Measures, and Benefits to Process-Management-Driven Businesses

1. Business process management seeks to fully align the resources of a business to achieve customer satisfaction as efficiently as possible. The approach emphasizes continuous quality improvement to leverage innovation and creativity in satisfying customers through improved processes.
2. Process management has been commonly referred to as the Plan, Do, Check, Act (PDCA) model.
3. Benefits to the organization include greater efficiency and effectiveness for achieving organizational objectives and quicker, more reliable responses to change.

B. Shared Services, Outsourcing, and Offshore Operations

1. Shared services, or consolidating redundant services, creates efficiency but could result in service flow disruption or customer failure demand.
2. Outsourcing involves the contracting of services to an external provider. Although outsourcing can provide efficiencies, it involves risks such as quality (of service) risk, productivity, staff turnover, and security issues.
3. Alternatives for shared or outsourced services may be more limited than alternatives for suppliers of goods. Offshore operations present additional risks including foreign exchange rate fluctuations and political instability.

C. Selecting and Implementing Improvement Initiatives

1. Selecting improvement initiatives may be impulse/fashion driven (irrational) or structured and systematic (rational).
2. Generally, the selection of a rational assessment plan begins with a strategic gap analysis, followed by a review of competitive priorities and a review of production objectives, culminating with the selection of an improvement program.

D. Business Process Reengineering

Business process reengineering is related to business process management, but it is not synonymous. Reengineering typically involves more radical changes in workflow and the adjustment of tasks or processes to meet new requirements. Often the new requirements are driven by changes in technology. In contrast, business process management seeks incremental change.

E. Management Philosophies and Techniques for Performance Improvement

Most management philosophies address the manner in which objectives can be achieved with the maximum of both efficiency and effectiveness. Below is a list of techniques used to address performance improvement:

1. *Just-in-time (JIT)* management achieves efficiency by scheduling the deployment of resources just in time to meet customer or production requirements.
2. *Quality* relates to either value-added features of products or services or to conformance with specifications. The philosophy focuses on continuous improvement to achieve complete customer satisfaction. *Total quality management* (TQM) is an organizational commitment to customer-focused performance that emphasizes both quality and continuous improvement.
3. *Lean manufacturing*, or lean production, anticipates the use of only those resources required to meet the requirements of customers. Somewhat like activity-based approaches, it seeks to invest resources only in value-added activities.
4. *Demand flow* manages resources using customer demand as the basis for resource allocation. Demand flow contrasts with resource allocations based on sales forecasts or master scheduling.
5. *Theory of constraints* (TOC) anticipates that organizations and projects are impeded from achieving objectives by the existence of one or more constraints. The organization or project must be operated in a manner that either works around or leverages the constraint.
6. *Six Sigma* entails the use of rigorous metrics in the evaluation of goal achievement. The program is a continuous quality-improvement program that requires specialized training.

II. OPERATIONS MANAGEMENT: PROJECT MANAGEMENT

A. Project Planning Implementation and Monitoring

A project is a temporary undertaking that produces a unique service, product, or result consisting of the following five major processes: initiating; planning; executing; monitoring and controlling; and closing the project.

B. Roles of Project Managers, Project Members, and Oversight or Steering Groups

Project managers are responsible for the day-to-day organizing, directing and controlling of the project while project members carry out the work. Project sponsors allocate resources to the project and are responsible for overall project delivery. The executive steering committee provides overall strategic direction and general oversight of the project.

C. Project Risks, Resource Management, Scope, Time Management, Cost Management, and Quality Management

Projects face the risk of failure. Risks may include lack of resources, cost overrun, misunderstanding of user expectations, etc. Project leadership must fully evaluate risk and take steps to mitigate risk whenever possible.

III. GLOBALIZATION AND LOCAL ECONOMIES

A. Globalization is defined as the distribution of industrial and service activities across an increasing number of nations.

B. Globalization produces deeper integration of the world's individual national economies and makes them more interdependent.

C. A significant measure of globalization is world trade expressed as a percentage of GDP. As world trade increases as a percentage of GDP, globalization increases.

D. Increased globalization of the world's economies is largely associated with such factors as improvements in transportation, technological advancements, deregulation of international financial markets, and the ability of companies to operate internationally without maintaining a physical presence in different countries (e.g., franchises versus direct foreign investment).

E. Economies of scale are larger in a global economy, which increases and promotes specialization.

F. There are several methods of conducting international business operations, including international trade, licensing, franchising, joint ventures, direct foreign investment, and global sourcing.

G. Conducting international business operations has several inherent risks. The multinational company could be exposed to exchange rate fluctuations, which may include transaction risk, translation risk, and economic risk. Additionally, having international business operations in a foreign country carries the risk associated with the health or weakness of that particular economy. There is also political risk when a multinational company conducts operations in a foreign country.

H. Developed nations are generally regarded as the world's largest industrial economies. The dominance of the U.S. as the world's single economic superpower is referred to as "unipolar distribution of power."

I. Emerging nations generally are regarded as the countries not included in the list of developed nations but are led by Brazil, Russia, India, and China (BRIC).

J. As emerging nations become more powerful, there is a shift in the economic balance of power. The distribution of power becomes multipolar versus unipolar.

K. Developed nations have generally produced trade deficits as their domestic consumption results in greater imports than exports. Emerging nations often produce trade surpluses as their exports feed the consumption of developed nations.

L. Emerging nations, notably China, have maintained an artificially low valuation of their currency relative to those of developed nations (particularly the U.S. dollar), keeping their goods cheap. Consequently, an emerging, less wealthy country effectively finances a richer country.

IV. FINANCIAL RISK MANAGEMENT

A. There are two broad categories of risk, *diversifiable* (nonmarket, unsystematic, firm-specific) risk and *nondiversifiable* (market or systematic) risk.

B. Market risk represents the exposure of a security or entity to fluctuations in value as a result of operating within an economy. Market risk is nondiversifiable risk.

C. Interest rate (yield) risk represents exposure to loss as a result of increases or decreases in interest rates. For example, an increase in interest rates causes a bond to decline in value, while a decrease in interest rates causes a bond to increase in value.

D. Default risk impacts creditors (lenders) and represents the potential that the debtor may not repay principal and/or interest when due.

E. Credit risk impacts borrowers and represents the inability of an entity to secure debt financing in a timely or affordable manner.

F. Liquidity risk affects lenders or investors that have a desire to sell a security, but cannot do so in a timely manner or without making material price concessions.

G. The candidate should know the definition and how to calculate the stated rate, effective interest rate, (effective) annual percentage rate, simple interest, and compound interest.

H. Other risks may include risks of international operations.

1. In addition to the political and economic risks of doing business in a foreign country, entities that operate internationally face the risks of monetary exchange rate fluctuation. These risks are categorized as *transaction*, *economic*, and *translation risk*.
2. Exchange rates are influenced by *trade-related* and *financial factors*.
3. *Transaction exposure* is the potential that an organization could suffer economic loss or experience economic gain upon settlement of individual transactions as a result of changes in exchange rates.
4. *Economic exposure* is the potential that the present value of an entity's cash flows could increase or decrease as the result of changes in the exchange rates.
5. *Translation exposure* is the potential that the entity's reported financial statement components will change as a result of exchange rate fluctuations.

I. Means for Mitigating or Controlling Financial Risks

1. In general, greater risks require greater return because most investors are *risk averse*.
2. Overall risk may be mitigated by *diversification*. Systematic risks are *nondiversifiable*.
3. Hedging techniques, such as futures, forwards, currency options and money market hedges, are used to mitigate transaction risks with receivables or payables. *The candidate should review the specific hedge transaction examples in the text*.
4. Valuation of transactions with foreign subsidiaries involves transfer pricing techniques designed to minimize local taxation while remaining within local guidelines.

V. FINANCIAL DECISIONS

A. Institutional short-term credit arrangements will usually contain many covenants and rate provisions (fixed versus variable). In general, these vary with the creditworthiness of the borrower and must be disclosed in the entity's financial statements.

B. Short-term financing, because it generally carries lower interest rates than long-term financing, offers the advantages of increased liquidity, lower financing costs, and increased profitability. Disadvantages are increased interest rate risk and decreased capital availability.

C. The advantages of long-term financing include decreased interest rate risk and increased capital availability, while the disadvantages include decreased liquidity and increased financing costs (lower profitability).

D. In addition to long-term debt (bonds and mortgages) and equity financing, other options may be working capital maturity matching, letters of credit, lines of credit, and leasing.

VI. FINANCIAL VALUATION

A. Know the methods for calculating valuations, including the dividend discount model and the price multiples approach. Be familiar with the P/E ratio, the PEG ratio, the price-to-sales ratio, the price-to-book ratio, and the price-to-cash-flow ratio.

B. Forecasting methods have numerous subjective elements that are subject to behavioral influences, including generalized rules of thumb used by managers, behavioral biases, and the impact of loss aversion.

1. Rules of thumb used by managers can distort their objective evaluation of evidence. Rules of thumb are points of reference that are accepted by managers without meaningful evaluation and include the use of stereotyped characterizations, adjustments from presumed baselines, and use of intuition rather than analysis.

2. Manager biases can distort objective evaluation of evidence. Manager biases include excessive optimism, confirmation bias, overconfidence, and an illusion of control.

3. Losses are emotionally more distracting than gains. Losses will disproportionately influence decisions when compared to gains of the same amount. Aversions to sure losses prevent managers from cutting their losses and instead persisting with losing projects.

VII. INTERNAL AUDITING STANDARDS

A. International Standards for the Practice of Internal Auditing (the *Standards*) are published by the Institute of Internal Auditors (IIA). The standards for the internal audit profession are meant to provide internationally authoritative guidance within the context of an international practices framework.

B. The *Standards* represent a structured listing of standards for internal auditors that include: attribute standards; performance standards; and implementation standards.

C. The attribute standards are general standards regarding: engagement definition; auditor independence and objectivity; auditor proficiency and professional care; and quality assurance, including continuing professional development.

D. The performance standards are overarching field work standards that include: planning; auditor communications; defining engagement scope in a manner that adds value consistent with the definition of internal auditing; and documenting work in a manner that supports conclusions.

E. The implementation standards are embedded within the attribute and performance standards, and provide requirements consistent with the unique issues applicable to assurance or consulting activities.

F. Assurance services involve the internal auditor's objective assessment of evidence to provide an independent opinion or conclusions regarding an entity, an operation, a function, a process, system, or other subject matter.

G. Consulting services are advisory in nature and are generally performed at the specific request of an engagement client. When performing consulting services the internal auditor should maintain objectivity and not assume management responsibility.